UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/779,071	02/07/2001	Eric Sven-Johan Swildens	UDN0005	4392

			EXAMINER
29989	7590	07/27/2005	PATEL, HARESH N

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ART UNIT	PAPER NUMBER
2154	

DATE MAILED: 07/27/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

Office Action Summary	Application No.	Applicant(s)
	09/779,071	SWILDENS, ERIC SVEN-JOHAN
	Examiner	Art Unit
	Haresh Patel	2154

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) FROM
THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed
  after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any
  earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *15 April 2005*.

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is
closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-30* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-30* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All   b)☐ Some * c)☐ None of:

        1.☐ Certified copies of the priority documents have been received.

        2.☐ Certified copies of the priority documents have been received in Application No. _____.

        3.☐ Copies of the certified copies of the priority documents have been received in this National Stage

        application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ .

5)☐ Notice of Informal Patent Application (PTO-152)

6)☐ Other: _____.

DETAILED ACTION

1.   Claims 1-30 are presented for examination.

Response to Arguments

2.   Applicant's arguments filed 4/15/2005 have been fully considered but they are not

persuasive. Therefore, rejection of claims 1-30 is maintained.

Applicant argues, (1) "Zisapel-Radware et al., US Publication, 2002/0103846 A1, "Load

Balancing", Aug. 1, 2002, Radware Limited (Hereinafter Zisapel-Radware) does not teach or

disclose, a system that assigns a virtual IP address to a scheduler that is designated as active

scheduler for a load balancing array, wherein request packets are routed via the virtual IP address

as claimed in claims 1 and 16". The examiner disagrees in response to applicant's arguments.

The limitations, "a system that assigns a virtual IP address to a scheduler that is designated as

active scheduler for a load balancing array, wherein request packets are routed via the virtual IP

address", etc, has been newly added, which is addressed by the new ground(s) of rejection

(please refer to the below rejections of this office action). Therefore, the rejection is maintained.

Response to Amendment

3.   The amendment filed 5/6/2005 is objected to under 35 U.S.C. 132 because it introduces

new matter into the disclosure. 35 U.S.C. 132 states that no amendment shall introduce new

matter into the disclosure of the invention. The added material which is not supported by the

original disclosure is as follows:

a.   addition of limitations, "assigning a virtual IP address to a scheduler", in claims 1

and 16.

Applicant is required to cancel the new matter, to avoid abandonment of this application,

in the reply to this Office Action.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making
> and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it
> pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode
> contemplated by the inventor of carrying out his invention.

4.   Claims 1 and 16 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply

with the written description requirement. The claim(s) contains subject matter, which was not

described in the specification in such a way as to reasonably convey to one skilled in the relevant

art to use and/or make the invention.

The specification does not contain subject matter to implement limitations, "assigning a

virtual IP address to a scheduler (being load balancing server)", as cited in claims 1 and 16.

Also, page 7, lines 22-30, of the specification, states "single virtual IP address for many Web

servers", which has a different scope than the claimed limitations.

Examiner has reviewed the specification (OCR whole document) and could not find

support for the additional limitations as claimed.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the
> subject matter, which the applicant regards as his invention.

5.   Amended claims 1, 3, 7, 16, 18, 22, are rejected under 35 U.S.C. 112, second paragraph,

as being indefinite for failing to particularly point out and distinctly claim the subject matter

which applicant regards as the invention.

6.   Amended claims 1 and 16, recite the limitations, "load balances said request packet",

"response packet to said request packet". There is insufficient antecedent basis for this limitation

in the claim. Due to amendment to the claims, multiple request packets (request packets from

requesting clients) exist in the claims 1 and 16. It is not clear which request packet is referred by

these limitations.

7.   Amended claims 7, 22, recite the limitations, "said request packet". There is insufficient

antecedent basis for this limitation in the claim. Due to amendment to the claims, multiple

request packets (request packets from requesting clients) exist in the claims 1 and 16. It is not

clear which request packet is referred by these limitations.

8.   Amended claims 3, 18, recite the limitations, "said load balancing servers", the new

scheduler". There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 103

9.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in
> section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are
> such that the subject matter as a whole would have been obvious at the time the invention was made to a person
> having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the
> manner in which the invention was made.

10.   Claims 1, 2, 16 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over

Zisapel et al., US Publication, 2002/0103846 A1, Aug. 1, 2002, "Load Balancing", Radware

Limited (Hereinafter Zisapel-Radware) in view of Hassett et al., 6173,311, PointCast Inc

(Hereinafter Hasett-PointCast) and Bruck et al., 6,801,949, Rainfinity Inc (Hereinafter Bruck-

Rainfinity).

11.   As per claims 1 and 16, Zisapel-Radware clearly teaches a process and an apparatus (e.g.,

figure 1C, abstract) to implement routing packets through a load balancing array of servers

across a network in a computer environment (e.g., router balancing load among cluster of servers

over the network, figures 1A – 1C, paragraph 33, page 3),

        a scheduler that is designated as active scheduler for a load balancing array (e.g., usage

of load balancing servers, content servers, S1, Sn, figures 1A – 1C, paragraph 33, page 3);

        wherein request packets from requesting clients destined for the load balancing array are

routed through said scheduler (e.g., LB1 load balancing server also scheduling client requests for

LB2 load balancing server, figures 1A – 1C, paragraphs 33 and 34, page 3);

        wherein said scheduler routes and load balances a request packet from a client (e.g.,

client requests, paragraphs 33 and 34, page 3) to a load balancing server (e.g., LB1 load

balancing server also scheduling client requests for LB2 load balancing server, figures 1A – 1C,

paragraph 33, page 3);

        wherein said load balancing server routes and load balances said request packet to a back

end Web server (e.g., LB2 load balancing server balancing load among content servers, S1, Sn,

figures 1A – 1C, paragraph 33, page 3);

        wherein said back end Web server's response packet to said request packet is sent to said

load balancing server (e.g., S1, Sn, content servers supporting client requests through LB2 load

balancing server, paragraphs 8-10, page1); and

wherein said load balancing server sends said response packet directly to said client (e.g., LB2 load balancing server forwarding response from content servers, S1, Sn, to the clients, paragraphs 8-10, page1).

Zisapel-Radware also teaches handling of multiple requests for a client (e.g., paragraph 36, page 3).

However, Zisapel-Radware does not specifically mention about a request containing multiple packets and a scheduler supporting multiple clients.

Hasett-PointCast clearly teaches a request containing multiple packets (e.g., abstract, col., 7, lines 5 – 40, col., 3, lines 34 – 65) and a scheduler supporting multiple clients (e.g., abstract, col., 7, lines 5 – 40, col., 3, lines 34 – 65).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of Zisapel-Radware with Hasett-PointCast in order to facilitate the scheduler to support multiple clients because the requests from the multiple clients would be processed by the scheduler. A request having multiple packets would help the request communicated from a client to the scheduler. The scheduler would receive requests from the clients and would forward the requests so that the requests from the clients are properly handled.

Zisapel-Radware and Hasett-PointCast do not specifically mention about assigning a virtual IP address to scheduling object and usage of the virtual IP address.

Bruck-Rainfinity discloses the concept of assigning a virtual IP address to scheduling object (e.g., col., 36, line 26 – col., 37, line 19) and usage of the virtual IP address (e.g., col., 36, line 26 – col., 37, line 19).

It would have been obvious to one of ordinary skill in the art at the time the invention

was made to combine the teachings of Zisapel-Radware and Hasett-PointCast with Bruck-

Rainfinity in order to facilitate assigning a virtual IP address to scheduling object and usage of

the virtual IP address because the scheduling object would use the virtual IP address for

communicating information to a remote device. The assigned virtual IP address would provide a

client device to use the object device for processing the request.

12.   As per claims 2 and 17, Zisapel-Radware, Hasett-PointCast and Bruck-Rainfinity teach

the claimed limitations as rejected above. Zisapel-Radware also teaches the following:

scheduler is a load balancing server and routes and load balances client requests to itself

(e.g., LB1 load balancing server scheduling client requests for itself, figures 1A – 1C, paragraph

33, page 3).

13.   Claims 3, 4, 7, 8, 13, 18, 19, 22, 23 and 28 are rejected under 35 U.S.C. 103(a) as being

unpatentable over Zisapel-Radware, Hasett-PointCast and Bruck-Rainfinity in view of "Official

Notice".

14.   As per claims 3 and 18, Zisapel-Radware, Hasett-PointCast and Bruck-Rainfinity teach

the claimed limitations as rejected above. However, Zisapel-Radware, Hasett-PointCast and

Bruck-Rainfinity do not specifically mention about the use of detecting the failure of the server

and electing one of said load balancing servers as the new server. "Official Notice" is taken that

both the concept and advantages of providing to detect the failure of the server and electing one

of said load balancing servers as the new server is well known and expected in the art. For

example, Coile et al., 6,108,300 (Hereinafter Coile) teaches limitations, "detecting the failure of

the server and electing one of said load balancing servers as the new server (e.g., col., 5, lines 3 –

24, e.g., col., 6, lines 40 – 62, col., 8, lines 2 – 28).

It would have been obvious to one of ordinary skill in the art at the time the invention

was made to include detecting the failure of the server and electing one of said load balancing

servers as the new server with the teachings of Zisapel-Radware, Hasett-PointCast and Bruck-

Rainfinity in order to facilitate replacing of scheduler in an event of the scheduler failure because

upon failure of the scheduler, another load balancing server can take over scheduling task to

assign servers for the client requests. The another load balancing server will then receive the

client requests and will process them, i.e., schedule them according to the scheduling algorithm.

15.   As per claims 4 and 19, Zisapel-Radware, Hasett-PointCast and Bruck-Rainfinity teach

the claimed limitations as rejected above. However, Zisapel-Radware, Hasett-PointCast and

Bruck-Rainfinity do not specifically mention about the use of server detecting the failure of other

load balancing servers and the server stops routing packets to any failed load balancing servers.

"Official Notice" is taken that both the concept and advantages of providing server detecting the

failure of other load balancing servers and the server stops routing packets to any failed load

balancing servers, is well known and expected in the art. For example, Coile et al., 6,108,300

(Hereinafter Coile) teaches limitations, "server detecting the failure of other load balancing

servers (e.g., col., 12, lines 35 - 54, col., 6, lines 40 – 62, col., 8, lines 2 – 28)" and "the server

stops routing packets to any failed load balancing servers/back end Web servers (e.g., col., 12,

lines 35 - 54, e.g., col., 6, lines 40 – 62, col., 8, lines 2 – 28)".

It would have been obvious to one of ordinary skill in the art at the time the invention was made to include server detecting the failure of other load balancing servers and the server stops routing packets to any failed load balancing servers, with the teachings of Zisapel-Radware, Hasett-PointCast and Bruck-Rainfinity in order to facilitate assigning client requests to another load balancing server instead of the failed load balancing server because stopping to route packets to the failed load balancing server would prevent dropping packets. Rerouting to the packets to the other load balancing server will help process the client requests.

16.   As per claims 7, 8, 22 and 23, Zisapel-Radware, Hasett-PointCast and Bruck-Rainfinity teach the claimed limitations as rejected above. However, Zisapel-Radware, Hasett-PointCast and Bruck-Rainfinity do not specifically mention about the use of server decrypting and encrypting packet for an SSL session. "Official Notice" is taken that both the concept and advantages of providing server decrypting and encrypting packet for an SSL session, is well known and expected in the art. For example, Hankinson et al., 6,799,202 (Hereinafter Hankinson) teaches limitations, "server decrypting and encrypting packet for SSL session (e.g., col., 3, lines 2 – 65)".

It would have been obvious to one of ordinary skill in the art at the time the invention was made to include server decrypting and encrypting packet for an SSL session, with the teachings of Zisapel-Radware, Hasett-PointCast and Bruck-Rainfinity in order to facilitate secure communicating between the client and the Web server because for processing and forwarding the packet to the Web server, the load balancing server will decrypt the packet when it receives from the client. The load balancing server will receive the response packet from the Web server, and

it will encrypt the response packet before sending to the client. Using well-known SSL session implementation, the web server and the client will have direct secure communication.

17.   As per claims 13 and 28, Zisapel-Radware, Hasett-PointCast and Bruck-Rainfinity teach the claimed limitations as rejected above. However, Zisapel-Radware, Hasett-PointCast and Bruck-Rainfinity do not specifically mention about the use of detecting and stop routing request packets to failed back end Web servers. "Official Notice" is taken that both the concept and advantages of providing detecting and stop routing request packets to failed back end Web servers is well known and expected in the art. For example, Coile et al., 6,108,300 (Hereinafter Coile) teaches limitations, "server detecting the failure of other load balancing servers (e.g., col., 12, lines 35 - 54, col., 6, lines 40 – 62, col., 8, lines 2 – 28)" and "the server stops routing packets to any failed load balancing servers/back end Web servers (e.g., col., 12, lines 35 - 54, e.g., col., 6, lines 40 – 62, col., 8, lines 2 – 28)".

It would have been obvious to one of ordinary skill in the art at the time the invention was made to include detecting and stop routing request packets to failed back end Web servers with the teachings of Zisapel-Radware, Hasett-PointCast and Bruck-Rainfinity in order to facilitate accessing the other web server in an event of the web server failure because upon failure of the web server, other web server would help support the client requests. By stopping to route the packets to the failed web server would help prevent packets from dropping and the other web server would then handle the client requests.

18.   Claims 5, 6, 14, 15, 20, 21, 29, 30, are rejected under 35 U.S.C. 103(a) as being

unpatentable over Zisapel-Radware, Hasett-PointCast and Bruck-Rainfinity in view of Masters

6,374,300 (Hereinafter Masters).

19.   As per claims 5, 6, 14, 15, 20, 21, 29, 30, Zisapel-Radware, Hasett-PointCast and Bruck-

Rainfinity teach the claimed limitations as rejected above. However, Zisapel-Radware, Hasett-

PointCast and Bruck-Rainfinity do not specifically mention about the server scheduling sessions

to servers based on a cookie or session ID and use of cookie injection to map a client to a

specific server.

        Masters clearly teaches about the concept of server scheduling sessions to servers based

on a cookie or session ID (e.g., abstract, col., 10, lines 8 - 61), and use of cookie injection to map

a client to a specific server (e.g., abstract, col., 10, lines 8 - 61, col., 13, lines 1- 24), modify

URLs in the HTML page in a packet to serve them from said content delivery network (e.g., col.,

5, lines14 – 61, col., 3, lines 21 - 50), HTML pages that have modified URLs are cached to

improve performance (e.g., abstract, col., 10, lines 8 - 61, col., 2, lines 24 – page 4, line 34, col.,

7, lines 1 - 16).

        It would have been obvious to one of ordinary skill in the art at the time the invention

was made to combine the teachings of Zisapel-Radware, Hasett-PointCast and Bruck-Rainfinity

with Masters in order to facilitate scheduling based on cookie for persistent connection with the

web server because using the cookie the client request can be routed to a previously selected

destination web server associated with the client. The client will be able to continue using the

same web server support. As per Masters teachings, the cookie information can be manipulated

as necessary. Hence, the client will be able to continue communicating with the server in a direct persistent manner.

20.   Claims 9-12, 24-27, are rejected under 35 U.S.C. 103(a) as being unpatentable over Zisapel-Radware, Hasett-PointCast, Bruck-Rainfinity and "Official Notice" in view of Masters 6,374,300 (Hereinafter Masters).

21.   As per claims 9-12, 24-27, Zisapel-Radware, Hasett-PointCast and Bruck-Rainfinity teach the claimed limitations as rejected above. However, Zisapel-Radware, Hasett-PointCast and Bruck-Rainfinity do not specifically mention about the client keeping connection alive with the server. "Official Notice" is taken that both the concept and advantages of the client keeping connection alive with server, is well known and expected in the art.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to include the client keeping connection alive with the server, with the teachings of Zisapel-Radware, Hasett-PointCast and Bruck-Rainfinity in order to facilitate secure communicating between the client and the Web server because using well-known SSL session implementation, the web server and the client will have direct secure communication as long as the connection between the web server and the client is alive.

Zisapel-Radware, Hasett-PointCast and Bruck-Rainfinity do not specifically mention about URL based scheduling of packets and the load balancing server performing hash scheduling of packets. Masters teaches about URL based scheduling of packets (e.g., col., 5, lines 18 – 65), persistent connections in its paths when required (e.g., col., 5, lines 22 – 59, col., 6, lines 8 - 31) and the load balancing server performing hash scheduling of packets (e.g., col.,

15, lines 45 – col., 16, lines 21) and uses hash group based persistence to maintain its persistence tables (e.g., col., 5, lines 22 – 59, col., 15, line 57 – col., 16, line 24).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of Zisapel-Radware, Hasett-PointCast and Bruck-Rainfinity with Masters in order to facilitate secure communicating between the client and the Web server because the URL information in the https packet would provide information of the resource, which the client needs to access. The scheduling with hashing of packets will provide direct secure communication between the web server and the client.

Conclusion

The prior art made of record (forms PTO-892 and applicant provided IDS cited arts) and not relied upon is considered pertinent to applicant's disclosure.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Haresh Patel whose telephone number is (571) 272-3973. The examiner can normally be reached on Monday, Tuesday, Thursday and Friday from 10:00 am to 8:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Follansbee can be reached on (571) 272-3964. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Haresh Patel

July 22, 2005

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